

Meeting Minutes

ASHRAE TC 1.3 – Heat Transfer and Fluid Flow

Meeting

Time: 1:00 pm – 3:30 pm on Tuesday (28-Jun-05), Location: Denver, CO (Plaza Court 4 (C))

- 1) Introductions
The meeting was called to order at 1:00 PM.
- 2) Confirmation of quorum
9 out of 14 voting members were present at the beginning of the meeting.
- 3) Approval of Minutes from 28-Feb-2005 meeting at Orlando
The minutes were unanimously approved with two minor changes. The approved minutes from the Orlando meeting are attached.
- 4) Liaison Comments
None of the liaisons were present.
- 5) Report from the Membership Chairperson
 - a) Review committee membership for next meeting.

Steve Eckles (Chairman)
Satheesh Kulankara (Vice Chair)
Tim Shedd (Secretary)
Rick Couvillion (Handbook)
Louay Chamra (Program)
Joe Huber (Research)
Srinivas Garimella
Anthony Jacobi
Branislav Korenic
Petur Thors
Walid Chakroun
Josua Meyer
Michele Friedrich (Membership)
Darin Nutter (Webmaster)
S. A. Sherif (ALI Coordinator)

- 6) Report from the Handbook Chairperson
 - a) Review accomplishments since last meeting.
 - b) Review timeline of remaining major milestones for 2005 Handbook.
 - c) Identify and assign tasks.

Louay Chamra reported on Handbook related activities. ASHRAE has sent the 2005 Fundamentals handbook to members. The next revision of the handbook will be in 2009. Corrections can be made yearly to the CD version of the handbook. Please send comments to the Handbook Chair.

- 7) Report from the Program Chairperson
 - a) Briefing on current program
 - b) Status of subsequent meeting's program
 - i) Program packages for Winter-04 (Anaheim) are due by 8-Aug-03.
 - ii) Program packages for Summer-04 (Nashville) are due by 14-Feb-04.
 - c) Ideas for future programs

The TC 1.3 sponsored seminar (Seminar 19: Modeling Evaporating or Condensing Flow Inside Microchannels) was well received with more than 50 attendees (estimate). The speakers did not sign the agreement to record this Seminar due to concerns regarding the terms of the agreement. Consequently, this seminar will not be available on the ASHRAE conference DVD.

TC 1.3 also co-sponsored a seminar (Seminar 41: Recent Advances in Thermal and Fluid Flow Characteristics of HVAC, Refrigeration and A/C Processes as a Result of ASHRAE Research) with TC 8.5 at the Denver meeting.

A seminar on "Fundamentals of Heat Transfer and Fluid Flow in HVAC Systems" is planned for the Chicago meeting. The TC also voted to co-sponsor a seminar on plate heat exchangers with TC 8.5 at the Chicago meeting.

Two possible topics for the 2006 Summer meeting in Quebec City were also proposed. These are:

- Fundamentals of Heat Transfer
- Flow maldistribution in heat exchangers (co-sponsorship with TC 8.5 and 8.4).

8) Report from the Webmaster (D. Nutter) [5 min]

The TC website was inaccessible for a period of time due to failures on the server. A skeletal version of the original website is now accessible. The complete website is expected to be available by the winter meeting in Chicago.

Webmaster has requested a list of publications from past TC 1.3 sponsored projects for inclusion on the website.

The website has a members only section available.

9) Report from the Research Chairperson (S. Eckles) [45 min]

a) Report

ASHRAE is very close to approving its long-range research plan. 45% of the weighting for evaluating RTARs and WS will be linked to the long-range plan. All TCs need to align project proposals with the long-range plan. Procedures for creating RTARs and WS have changed significantly over the past couple of years. Members are advised to visit ASHRAE website to get the latest formats for RTARs and WS.

b) Current Research

- i) RP-1207 (In Tube Condensation of Ammonia in Smooth and Enhanced Tubes with and without Oil, PI = P. Hjrnjak, PMS Chair = B. Nelson)

Based on feedback from the PMS, The PI made changes to the draft report. The updated project report was forwarded to all TC members prior to the meeting. The PMS recommended that the TC accept the final report. The TC voted unanimously to accept the report.

- ii) RP-1213 (Refrigerant Flow Maldistribution Control in Evaporators Using EHD, PI = J. Seyed-Yagoobi, PMS Chair = L. Chamra)

The draft project report was received by the PMS just before the meeting. The PMS did not have time to review the report in time for this meeting. There appears to be confusion regarding the completion date for this project. Summer 2004 is the official completion date for the project. The TC however granted a no-cost extension for this project until July 1, 2005. The TC granted another no-cost extension until the Winter 2006 meeting (9 in favor, 0 against, 1 abstain).

- iii) RP-1280-TRP, (Measurement and Evaluation of Single-Phase Heat Transfer and Pressure Drop Inside Enhanced Tubes for Transition Flow, PI = J. Meyer, PMS Chair: P. Thors)

PI's representative presented a status report in the research review meeting. Several problems were encountered with the experimental facility. Several new parts have been ordered. In the meantime, the PI is doing tests with smooth tubes to check the working parts of the facility. The PI has also proposed a new method to collect and reduce test data. The new method is estimated to have an uncertainty of 1.8%. The PI requested a 6 month no cost extension for the project. The TC voted unanimously to grant the requested extension.

- iv) RP-1270-TRP, (Performance Characterization of Selected Refrigerants in Flat Plate Microscale Condensers, PI = to be determined, PES/PMS Chair = Michele Friedrich)

The PI's representative presented the design of the test section. The PI has developed a method to manufacture the microchannel section required for the project. The WS calls for testing of two fluids. R134a was selected as one of the two fluids. The 2nd fluid needs to be determined. The PI has proposed FC 7100 as the 2nd fluid. PMS will discuss options for the 2nd fluid. The PMS has requested a propagation of error analysis for the experimental work to be completed at the earliest and send to the PMS for review.

c) Planned/Desired Research

i) Status of Work Statements

- a) Work Statement "Correlation for Air-Side Heat and Mass Transfer in Finned-Tube Heat Exchangers with High Latent Cooling Loads" (written by B. Nelson)

A draft version of the work statement was circulated prior to the TC meeting. Need feedback from TC. August 15th is the deadline for submission for the fall RAC meeting

- b) Work Statement "Evaporation in Corrugated Plate Heat Exchangers with Ammonia and Ammonia/miscible Oil" (written by Z. Ayub)

A draft version of the work statement was circulated prior to the TC meeting. Need feedback from TC. August 15th is the deadline for submission for the fall RAC meeting.

- c) Update on Two Phase flow in Risers RTAR (G. Price)
The work statement has been approved by RAC.

ii) Status of RTARs

- a) Update on RTAR "Modeling of Frost Growth"

The RTAR was prioritized by RAC. The RTAR needs to be converted to a work statement. P. Mago has volunteered to work on the work statement.

- b) Update on Airside Maldistribution RTAR (D. Zietlow)
No update

- c) Received URP-1318 on Direct Contact Heat Exchanger for Temperature, Humidity and IAQ control

Two TC members have evaluated and graded the proposal. A third TC member has volunteered to an additional reviewer for the proposal. The reviews of the three reviewers along with the scores will be forwarded to the TC for a vote.

d) CFD for use in air-side fin design

RAC returned RTAR with comments. However, there appears to be some misunderstanding regarding the scope of the RTAR. The TC has agreed to modify and re-submit the RTAR. M. Valiya Naduvath has volunteered to modify the RTAR.

e) EHD for oil separators

This topic has been in the TC long-range research plan for some time without any activity. A motion was proposed to remove this topic from the long-range research plan. The motion was passed unanimously.

iii) New Research Topics

One new topic for investigating liquid droplet size and droplet carry-over issues in heat exchangers was suggested. TC 10.1 is apparently working on a similar project. S. Kulankara has volunteered to evaluate the TC 10.1 project for a possible co-sponsorship.

The TC is looking for new research topics. Members are encouraged to suggest possible research topics.

LONG RANGE RESEARCH PLAN		
Rank	Title	Status
1.	Boiling and Two-Phase Flow Study on Ammonia and Ammonia-Oil Mixture in Corrugated Passages Simulating a Heat Exchanger	Draft WS created. Needs TC approval
2.	Correlation for Air-Side Heat and Mass Transfer in Finned-Tube Heat Exchangers with High Latent Cooling Loads	Draft WS created. Needs TC approval
3.	Modeling of Frost Growth	RTAR approved. Needs WS
4.	CFD for Fin Design	RTAR needs to be modified and re-submitted

10) New business

None.

11) Announcements from TC chairperson meeting

ASHRAE is proposing to reduce the time allotted for sessions (symposia, seminar and forums) to 1 to 1.5 hours. The purpose appears to be to eliminate the Wednesday meeting. A motion was put forward to convey to ASHRAE TC 1.3's disagreement with the above proposal. The TC voted unanimously to approve the motion.

ASHRAE has offered to send letters of appreciation to TC member's employers showing appreciation for the member's voluntary work and contribution to ASHRAE. A sign up sheet was circulated for members interested in this offer.

ASHRAE has requested all TCs to send their minutes within 60 days of the meeting.

ASHRAE has requested nominations for the Hightower Award are by the end of September.

12) Adjourn

Motion to adjourn. Unanimous approval.